

Show ALL work in space provided and *clearly mark final answer* to receive any credit!

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| Factor out the greatest common factor. 1. $15u^7 - 5u^6 + 10u^5$ | Factor out the common binomial factor. 2. $8x(p+5) + (p+5)$ |
| Factor by grouping. 3. $xy + 8x + 7y + 56$ | |
| Factor by grouping. 4. $2a^3 - 10ab + 5a^2b - 25b^2$ | |
| Factor by grouping. 5. $ab - 4a - 6b + 24$ | |

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| <p>Factor the polynomial completely, if possible:</p> <p>6. $y^2 - 18y + 72$</p> | <p>Factor the polynomial completely, if possible:</p> <p>7. $x^2 + 6x + 16$</p> |
| <p>Factor the polynomial completely, if possible:</p> <p>8. $-p^2 - 11p - 30$</p> | <p>Factor the polynomial completely, if possible:</p> <p>9. $4a^2 - 8a - 480$</p> |
| <p>Factor the polynomial completely, if possible:</p> <p>10. $2b^3 - 22b^2 + 48b$</p> | <p>Factor the polynomial completely, if possible:</p> <p>11. $m^2 - 5mn - 36n^2$</p> |

Factor the polynomial completely, if possible:

12. $9x^2 + 54x + 81$

Factor the polynomial completely, if possible:

13. $12h^2 + 31h + 20$

Factor the polynomial completely, if possible:

14. $2x^2 + 3xy - 14y^2$

Factor the polynomial completely:

15. $14r^5t^3 + 13r^4t^3 + 3r^3t^3$

Factor the polynomial completely:

16. $7z^2 - 18z + 8$

Factor the polynomial completely:

17. $25z^2 - 20z + 4$

Factor the polynomial completely:

18. $12y^3 + 60y^2 + 75y$

Factor the polynomial completely:

19. $4x^2 + x + 9$

Factor the polynomial completely:

20. $r^2 - 81$

Factor the polynomial completely:

21. $63 - 7m^2$

Factor the polynomial completely:

22. $w^3 + 64$

Factor the polynomial completely:

23. $1000a^3 - 27$

Factor the polynomial completely:

24. $128p^3 - 54q^3$

Solve the following equation:

25. $12p(p - 4) = 0$

Solve the following equation:

26. $(11t + 5)^2 = 0$

Solve the following equation:

27. $49 = 25r^2$

Solve the following equation:

28. $7d^2 - 30d + 8 = 0$

Solve the following equation:

29. $p^2 + 13p = -30$

Solve the following equation:

30. $(10x - 11)(x - 6) = 0$